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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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09/870,167

05/30/2001

Takayoshi Tanai

Furusawa Case 60

9266

7590

11/05/2003

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EXAMINER

ANYASO, UCHENDU O

ART UNIT

PAPER NUMBER

2675

DATE MAILED: 11/05/2003

4

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/870,167

Applicant(s)

TANIAI ET AL.

Examiner

Uchendu O Anyaso

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 11 August 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 13-25 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) 21 and 22 is/are allowed.
- 6) ☒ Claim(s) 13-20 and 23-25 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

1. **Claims 13-25** are pending in this action.

Claim Rejections - 35 USC ' 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. **Claims 13-18, 23 and 24** are rejected under 35 U.S.C. 103(a) as being unpatentable over *Takeuchi* (U.S. 6,141,061) in view of *Hong* (U.S. 5,706,063).

Regarding **claim 13**, and for **claims 17 and 18**, Takeuchi teaches an invention that relates to an image processing system having scaling capabilities (column 1, lines 5-8).

Furthermore, Takeuchi teaches how a gradation correction circuit 98 effects gradation correction such as gamma correction using a lookup table (column 8, lines 5-8, figure 3 at 98).

Also, Takeuchi teaches an LCD driver circuit 42 for driving a display panel 44 (figure 1 at 42, 44).

Furthermore, Takeuchi teaches a color converter 60, and a data selector 62 that selects and outputs the RGB signal output by the color converter 60 wherein the CPU 50 supplies the selection signal for the data selector 62 (column 6, lines 42-52, figure 2 at 50, 60, 62).

Also, Takeuchi teaches line buffers 64 and A-D converters 34 wherein since the color image is represented by an RGB three-color signal, n pieces of line buffers 64 are provided for each of R, G and B, and the line buffers 64 are memories which temporarily store the n pieces

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of parallel image signals generated by the A-D converters 34 (column 6, lines 53-59, figure 2 at 34, 64). Furthermore, Takeuchi teaches the impact of color on the image processing system wherein the "interpolation" is effected by the first enlargement/interpolation circuit 150 means such the processing for calculating the weighted average of two lines of the image signal is located before and after the line to be added (column 13, lines 30-46, figure 9C at 150).

Furthermore, Takeuchi teaches how a whole image processing system is installed inside a liquid crystal projector where it processes images for display on the liquid crystal display panel 44 wherein the images displayed on the liquid crystal display panel 44 are projected onto a projection screen by an optical system (column 5, lines 13-17, figure 1 at 44).

However Takeuchi does not teach a single polarizer image display projector wherein white or color data are inserted among the data of the R, G, and B color tones. On the other hand, Hong teaches an LCD projector that comprises a polarizing beam splitter for passing only a specific wavelength of the light emitted from the light source and reflecting another wavelength, and two reflection type LCDs for a black-and-white signal and a color signal, respectively, which are placed in correspondence with the light of the respective wavelengths split by the beam splitter, and for either transmitting or scattering the light of the respective wavelengths according to whether the LCD is turned on or off wherein the resolution can be improved by projecting the LCD for the black-and-white signal together with the LCD for the color signal (column 3, lines 66 through column 4, lines 25).

Thus, it would have been obvious to a person of ordinary skill in the art to combine Takeuchi because while Takeuchi teaches the concept of image processing system having scaling capabilities (column 1, lines 5-8) that utilizes a gradation correction circuit 98 (column

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8, lines 5-8, figure 3 at 98), Hong teaches an LCD projector that comprises a polarizing beam splitter and two reflection type LCDs for a black-and-white signal and a color signal wherein the resolution of the display can be improved by projecting the LCD for the black-and-white signal together with the LCD for the color signal (column 3, lines 66 through column 4, lines 25). The motivation for combining these inventions would have been to improve the quality of the projected image (column 1, lines 53-56).

Regarding **claim 14**, in further discussion of claim 13, Takeuchi teaches a color converter 60, and a data selector 62 that selects and outputs the RGB signal output by the color converter 60 wherein the CPU 50 supplies the selection signal for the data selector 62 (column 6, lines 42-52, figure 2 at 50, 60, 62).

Also, Takeuchi teaches line buffers 64 and A-D converters 34 wherein since the color image is represented by an RGB three-color signal, n pieces of line buffers 64 are provided for each of R, G and B, and the line buffers 64 are memories which temporarily store the n pieces of parallel image signals generated by the A-D converters 34 (column 6, lines 53-59, figure 2 at 34, 64).

Regarding **claims 15 and 16**, in further discussion of claim 13, Takeuchi teaches a method of sharpening the image wherein each of the vertical reduction unit and the horizontal reduction unit comprises: a buffer memory for storing a prescribed amount of input image data; a weighted-averaging unit for obtaining a weighted-average of first image data read from the buffer memory and second image data representing an image portion immediately following the

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first image data to produce third image data; a selector for selecting and outputting one set from among a plurality of sets of image data including the input second image data and the third image data output by the weighted-averaging unit; and a selection signal generator for generating from an image reduction factor a selection signal indicating an image portion which is to be dropped by the reduction and supplying the selection signal to the selector (column 3, lines 5-24).

Furthermore, Takeuchi teaches that the vertical reduction unit and the horizontal reduction unit each has a reduction factor in the range of 0.5 to 1, whereby the image portion which is to be dropped by the reduction in the vertical reduction unit is one line per location and the image portion which is to be dropped by the reduction in the horizontal reduction unit is one pixel per location (column 3, lines 38-44; *see generally* column 1, lines 10-17, figures 16(A)-16(D)).

Regarding **claims 23 and 24**, in further discussion of claim 6, Takeuchi teaches how the write clock pulse generator 76 generates a dot clock signal DCLK1 in accordance with the horizontal sync signal HSYNC1 supplied by the sync separator 32 (FIG. 1) wherein the processing by the image write control section shown in FIG. 2 is effected synchronously with the dot clock signal DCLK1 and the sync signals VSYNC1, HSYNC1 (column 7, lines 41-49, figure 2 at 76).

Furthermore, Takeuchi teaches how a read clock pulse generator 108 generates a dot clock signal DCLK2 in accordance with the horizontal sync signal HSYNC2 supplied by the liquid crystal display driver 42 (FIG. 1) wherein the processing by the image read control

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section shown in FIG. 3 is effected synchronously with the dot clock signal DCLK2 and the sync signals VSYNC2, HSYNC2 (column 8, lines 39-48, figure 3 at 108).

4. **Claims 19, 20 and 25** are rejected under 35 U.S.C. 103(a) as being unpatentable over *Takeuchi* (U.S. 6,141,061) in view of *Hong* (U.S. 5,706,063), and further in view of *Satake et al* (U.S. 6,493,052).

Regarding **claims 19, 20 and 25**, in further discussion of claims 17 and 18, *Takeuchi* does not teach a D/A conversion circuit that is used to improve contrast. On the other hand, *Satake* teaches how to improve the contrast and brightness for an electronic appliance (concretely, liquid crystal projectors and so on) mounted with such a liquid crystal display device as a display unit utilizing a signal processing circuit 17 comprising a D/A converter, gamma correction circuit, signal dividing circuit, etc (column 16, lines 28-31; column 13, lines 26-30, figure 11 at 17).

Thus, it would have been obvious to a person of ordinary skill in the art to combine *Takeuchi*, *Hong*, and *Satake*'s inventions because while the combination of *Takeuchi* and *Hong* teach an image processing system having scaling capabilities (column 1, lines 5-8) that utilizes a gradation correction circuit 98 (column 8, lines 5-8, figure 3 at 98), and an LCD projector that comprises a polarizing beam splitter and two reflection type LCDs for a black-and-white signal and a color signal wherein the resolution of the display can be improved by projecting the LCD for the black-and-white signal together with the LCD for the color signal (column 3, lines 66 through column 4, lines 25), *Satake* teaches how to a liquid crystal display device as a display unit utilizing a signal processing circuit 17 comprising a D/A converter, gamma correction

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circuit, signal dividing circuit, etc (column 16, lines 28-31; column 13, lines 26-30, figure 11 at 17). The motivation for combining these inventions would have been to achieve an efficient method for improving the contrast and brightness for liquid crystal projectors (column 16, lines 28-31).

Allowable Subject Matter

5. **Claims 21 and 22** are allowed.

Response to Arguments

6. Applicant's arguments with respect to claims 13-20 and 23-25 have been considered but are moot in view of the new ground(s) of rejection.

In response to all of applicant's arguments, please see rejection above.

Contact Information

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Uchendu O. Anyaso whose telephone number is (703) 306-5934. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Steve Saras, can be reached at (703) 305-9720.

Any response to this action should be mailed to:

Commissioner of Patents and Trademarks

Washington, D.C. 20231

or faxed to:

(703) 872-9314 (for Technology Center 2600 only)

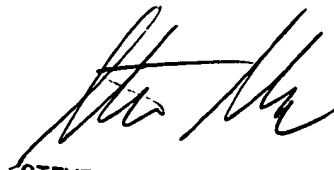
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Hand-delivered responses should be brought to Crystal Park II, 2121 Crystal Drive, Arlington, VA, Sixth Floor (Receptionist).

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the Technology Center 2600 Customer Service Office whose telephone number is (703) 306-0377.

Uchendu O. Anyaso

10/18/2003



STEVEN SARAS
SUPERVISORY PATENT EXAMINER
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